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AD HOC WORKING GROUP OF EXPERTS
ON BIOLOGICAL DIVERSITY

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NOTE BY THE EXECUTIVE DIRECTOR

I. INTRODUCTION

1. The Governing Council of the United Nations Environment Programme (UNEP) in its decisions 14/26 and 15/34 formally recognized and re-emphasized the need for concerted international action to protect biological diversity on Earth by, inter alia, the implementation of existing legal instruments and agreements in a co-ordinated and effective way and the adoption of a further appropriate international legal instrument, possibly in the form of a framework convention.

2. The first session of the Ad Hoc Working Group of Experts on Biological Diversity, established pursuant to Governing Council decision 14/26, was held in Geneva from 16 to 18 November 1988 and the Executive Director reported the results to the Governing Council at its fifteenth session from 15 to 26 May 1989.

3. The second session of the Working Group was convened in Geneva from 19 to 23 February 1990 to advise further on the contents of a new international legal instrument, with particular emphasis on its socio-economic context. At that session, the Working Group made significant progress in a number of outstanding issues related to the preparation of a new legal instrument. The Group recommended the preparation of a number of studies as a means of responding to specific issues in the process of developing the new instrument (see UNEP/Bio.Div.2/3, paragraphs 15 and 26).

4. In accordance with these recommendations, the Secretariat commissioned six studies:

(a) Study on cost of global biodiversity conservation needs;

(b) Study on current multilateral, bilateral and national financial support for biological diversity conservation;

(c) Study on possible global financing and financial mechanisms for conservation of biological diversity;

(d) Study on the relationship between intellectual property rights and access to genetic resources and biotechnology;

(e) Study on biotechnology issues for consideration in preparing a framework legal instrument on biological diversity;

(f) Study on relevant existing legal instruments, agreements and action plans on biological diversity.

5. Several of the above-mentioned studies have been initiated with the support of certain developed countries. The reports have been distributed in English (UNEP/Bio.Div.3/Inf.1; UNEP/Bio.Div.3/Inf.2; UNEP/Bio.Div.3/Inf.3; UNEP/Bio.Div.3/Inf.4; UNEP/Bio.Div.3/Inf.5; UNEP/Bio.Div.3/Inf.6) and summaries of their respective contents are available in other languages for the Working Group at its current session as documents UNEP/Bio.Div.3/3, UNEP/Bio.Div.3/4, UNEP/Bio.Div.3/5, UNEP/Bio.Div.3/6, UNEP/Bio.Div.3/7.

6. In addition to the studies mentioned above, and to assist in the preparation of more accurate estimates of the total costs of global biological diversity conservation needs, the Secretariat contacted nine developing and developed countries (Brazil, Germany Federal Republic of, Indonesia, Madagascar, Nepal, Peru, Poland, Uganda, Zaire) with regard to initiating country studies to determine approximate conservation costs and conservation needs that have not been met. The information that will be available will be provided to subsequent meetings.

7. The Ecosystems Conservation Group (FAO, UNESCO, International Union for the Conservation of Nature and Natural Resources and UNEP) has been active and very helpful in assisting the Executive Director. It reviewed the matter of draft elements for consideration in the new legal instrument on biological diversity at a special session in Rome from 23 to 25 April 1990. The draft elements annexed to the present note benefited significantly from these consultations.

8. The present session has been convened in the hope that most of the technical issues will be sufficiently settled for the Executive Director to begin the actual process of negotiation of a framework legal instrument on biological diversity. On the basis of the final report of the Working Group, the Executive Director was authorized by the Governing Council in its decision 15/34, paragraph 6, "to convene, in consultation with Governments and within available resources, an ad hoc working group of legal and technical experts with a mandate to negotiate an international legal instrument for the conservation of the biological diversity of the planet ...".

II. BASIC ISSUES

A. Cost of Global Biodiversity Conservation

9. The solving of global environmental problems will be greatly enhanced if it is based on the principle of global interdependence and a sense of shared responsibility. The cost of conservation of biological diversity should not fall disproportionately on those countries which happen to have significant populations of biological diversity on their territory. Most of the planet's biological diversity is located in developing countries which may not be able to finance investments in its conservation. If they are to assume the responsibility implied in the conservation of biological diversity, considerable funding is required. Those who enjoy the economic benefits of biological diversity conservation should contribute equitably to its conservation and sustainable development.

10. An analysis of the nature, scale and timing of the transfer of resources and the implementation of procedures for financial mechanisms reveals a number of pertinent considerations:

(a) Developing countries face a complex reality in coping with their economic problems as well as the imminent adverse effects of environmental degradation. They need financial assistance to meet incremental costs likely to arise from the conservation of biological diversity and from a delay in their development programmes. Such financial assistance should be perceived in terms of sharing the benefits generated from biological diversity and in terms of responsibility for its conservation. In this context, developing countries faced with a huge array of economic problems are unlikely to accept a diversion of existing funds that are earmarked for development purposes;

(b) Developing countries rich in biological diversity are at present largely unable to obtain either at a significant level, or with a degree of exactitude, the economic and financial benefits that arise from the conservation and management of their biological diversity;

(c) Appropriate management of the habitat is the least costly and the only method for conserving large and distinct populations of most species. Ex situ conservation measures alone cannot maintain the full range of biological diversity, but are important supplements to in situ conservation. The primary approach should, therefore, be through the protection of habitats, but within the national framework of land use planning and species protection that safeguards biological diversity to the maximum extent practicable outside as well as within the designated protected areas. However, the designation of specific land areas to conserve biological diversity often conflicts with alternative land uses in developing countries, sometimes leading to considerable economic loss and political controversy and debate. In this situation, compensatory financing could provide a substantial incentive to undertake what could otherwise be politically difficult decisions;

(d) The availability of additional, concessional funds could, when coupled with effective design and development of conservation and utilization programmes, help to focus attention on biological diversity and obtain support for further investment programmes. This will be especially effective if institutional strengthening, the development of the human resources base, and the national capacity for managing conservation strategies in countries rich in biological diversity are kept in focus;

(e) Financial resources are likely to be forthcoming at adequate levels if the early focus is on action-oriented programmes, dealing with biogeographical regions that are of great concern;

(f) There is clearly a need for a pilot approach that will bring to the fore what is actually needed to tackle the problems associated with effective conservation of biological diversity through an international agreement, namely, the provision of more scientific data, a better understanding of the costs and benefits of financial transfers, the incorporation of the maximum amount of biological diversity in protected areas, the ensuring of access to the diverse biological resources and technologies needed to achieve a minimum acceptable standard of living for local populations in a sustainable way, the prevention of further deterioration of the biosphere, and the increased protection of biological diversity by means of broader programmes for land use, water management and ex situ and in situ conservation.

11. The level of financial resources required to meet the needs of global conservation of biological diversity as identified by the Working Group at its second session (see UNEP/Bio.Div.2/3, paragraph 15) is clearly beyond the level of existing multilateral and bilateral assistance provided to developing countries for the purpose of conservation of biological diversity.

12. Uncertainties as to the total cost, together with the fact that the estimates are quite crude and may be no more than an order of magnitude of the global conservation cost and the fact that precise costing of certain conservation measures will never be possible, should not delay or hamper the development of the new legal instrument. More accurate information at the country level is necessary before one can go any further with this kind of analysis. Conservation needs differ considerably among countries, and depend on a country's general economic situation and the status of biological diversity within its jurisdiction.

B. Global Fund Raising and Financial Mechanisms for Conservation of Biological Diversity

13. The intense pressures on the world's biological diversity will go on increasing unless appropriate conservation measures are taken. The rapid destruction of the world's most diverse ecosystems and the unprecedented rate of extinction of species have led most experts to conclude that the state of biological diversity beyond 2050 will depend to a very large extent on our efforts in the immediate future. Long-term conservation of biological diversity will only come about if the common concern of nations is reflected in a transfer of resources on a global scale, in a planned way, and if these resources are used in appropriate ways. This is especially significant, because most of the world's biological diversity is located in countries that lack adequate resources for its conservation. Some steps in this direction have already been taken, but they are inadequate.

14. The establishment of a fund or a funding mechanism to provide assistance to nations in conserving biological diversity is central to the success of a new legal instrument. The main question that needs to be addressed is how a global approach to the conservation of biological diversity should be financed. The incremental costs likely to be incurred by developing countries for conservation of biological diversity need to be identified and agreed upon. The preliminary cost estimates to meet global needs for conservation of

biological diversity identified by the Working Group at its second session (see UNEP/Bio.Div.2/3, paragraph 15) would range from hundreds of millions to billions of dollars per year over the next 20 years. These estimates provide an initial indication of the range of costs involved. Not enough data and information are currently available to determine the magnitude of the costs. Those figures need to be refined. Funds to meet these costs must be raised and channelled through appropriate mechanisms. New sources must be tapped, new modalities for fund-raising devised, and new mechanisms for dealing with such funds established.

15. It is unlikely that the quantity of resources currently available for the conservation of biological diversity could be increased in the near future through higher taxation (not an attractive or even politically feasible position in most donor countries) or increased lending by multilateral financing institutions through the raising of funds for this purpose in the capital market. There is also broad agreement among economists that when there is a planetary threat leading to a harmful impact on a common global element such as biological diversity, investment expenditure for containment or conservation strategies (of which the benefits can only be assessed on an international scale) cannot be carried out by commercial loans or using conventional development assistance. In dealing with global problems, it is necessary to move from the prescription of capital finance to the principles of public finance.

16. Contributions to the fund should come from a multiplicity of previously untapped resources and the funding mechanisms should entail several components:

(a) Voluntary contributions from nations, organizations and individuals;

(b) The establishment of innovative revenue generating systems. Users' fees could be one source, and the introduction of fiscal incentives and subsidies that send proper cost signals for the use of biodiversity to improve or correct market forces is another potential source;

(c) The conversion of areas that are rich in biological diversity into global economic assets in which the international community can invest in conservation, while respecting the sovereign rights of individual nations over their natural resources. Under such an arrangement, habitats rich in biological diversity would have a designated value upon which to generate financial payments by the global community;

(d) Contributions from other funds for relevant international arrangements currently under consideration for financial and technology transfers;

(e) Debt for nature swaps;

(f) Licensing fees and royalties arising from intellectual property rights vested in the fund through an operating unit;

(g) Funds raised by collections and receipts from events organized for the benefit of the fund;

(h) Interest from endowments created specifically for the purpose;

(i) Funds borrowed by the fund;

(j) The tapping of Plant Breeders Rights as sources for biological diversity conservation and the development of other mechanisms, such as the Farmers Rights adopted by the FAO Commission on Plant Genetic Resources;

(k) Other resources authorized by the Contracting Parties;

(l) The adjustment of new and additional aid and development funding systems to increase funding to biological diversity conservation activities.

17. Several other schemes have been put forward on various occasions, including entry fees for national parks; charges for the use of water supplied from protected catchments; imposition of charges on approved development such as hotel facilities and the granting of concessions to individuals and groups who will themselves fund services.

18. It is necessary to pay close attention to users' fees and other charges that help to localize the economic and environmental costs of loss of biological diversity in the operational cost of resource use. They are also probable sources of immediate revenue for the fund. Industrial, commercial and trade enterprises that profit from the business in biological diversity or from other material derived from biological diversity in the past, present or future are thus presented with the full incremental costs of their activities. Users' fees could not only raise considerable funds for the conservation of biological diversity, but could also curb unsustainable use of the resources and provide a more effective and efficient ecological control mechanisms.

19. The financial mechanisms sought to manage the financial transfers could be:

(a) A new fund with a financial and technical secretariat under the control of the Contracting Parties to a legal instrument on biological diversity;

(b) A new facility or "window" in an existing institution;

(c) A co-operative arrangement based on comparative advantage among a number of international organizations (e.g. UNEP, World Bank, FAO, UNDP and others);

(d) A combination of all three of the above.

20. Whatever form the financial mechanism may take:

(a) There is a need for sufficient new and additional funds to achieve the conservation of biological diversity;

(b) There must be a clear understanding of the scale of assessment or of burden sharing among donors. This could be a percentage of GNP, or could be related to industrial or commercial exploitation of genetic resources or trade during the past 5 years;

(c) Payments from the fund will have to be made for the financial and technical secretariat needed to service the fund and to meet basic conservation needs identified by the Working Group;

(d) The financial mechanisms developed must be regarded as a first approximation only. A number of sources of financial transfers and of funding mechanisms must be identified to offer a spectrum of remedial actions;

(e) The new modalities of financing should be administratively feasible, create no severe inequalities in terms of burden-sharing, and raise no insuperable problems of collection.

C. Biotechnology Issues for Consideration in the Preparation of a Framework Legal Instrument on Biological Diversity

21. In its decision 15/34 the Governing Council of UNEP agreed that the full implications of the new biotechnologies and the economic dimension, including, inter alia, the question of adequate machinery for financial transfers from those who benefit from the exploitation of biological diversity, including through the use of genetic resources in biotechnology, to the owners and managers of biological resources and appropriate measures to facilitate the transfer of technical means of utilizing biological diversity for human benefit should be taken into account in any international legal instrument on biological diversity.

22. The emerging techniques in biotechnology offer both prospects and problems for the conservation of global biological diversity. The importance of biodiversity for the future of biotechnology cannot be over-emphasized. As the field of biotechnology develops, the scope of future germplasm needs will be far greater than is currently the case. However:

(a) Developing countries lack the necessary expertise and equipment to exploit genetic variation and, therefore, the development of biotechnology has historically been focused on the needs and priorities of industrialized societies;

(b) New technologies are mostly patented and the increasing dominance of the private sector in biotechnology has implications for the developing countries access to advances in science and technology;

(c) Advances in techniques and ideas for application are proceeding in the absence of appropriate regulatory control;

(d) Like any other technology, biotechnology might not be without negative environmental, health or socio-economic impacts.

23. To maximize the benefits and minimize the risks associated with biotechnology application, the international community is challenged to devise innovative mechanisms to:

(a) Ensure the development, transfer of, and favourable access to scientific information, patents, know-how and biotechnology for the sustainable utilization of biological diversity, also on a concessional, low-profit or non-profit basis;

(b) Facilitate access to genetic resources;

(c) Facilitate the development of modern biotechnology and its application to the problems of particular concern to developing countries;

(d) Allow developing countries to obtain a portion of the economic and social returns generated from the use of their genetic diversity as one means of achieving equity and as an incentive for conserving biological diversity;

(e) Establish effective co-operation with reciprocal benefits between biotechnology-rich developed countries and gene-rich developing countries;

(f) Guarantee preferential treatment for owners of genetic resources with regard to access to biotechnologically manipulated resources;

(g) Anticipate the possible negative effects of biotechnology and develop appropriate national and international regulatory measures.

24. Success in transferring technology will depend upon finding new approaches and modalities to ensure the flow of additional financial resources necessary for sharing the available technologies. The problems of patents, royalty payments, and property rights that are in the hands of the private sector will have to be solved, taking into account the investments made by this sector in developing the technologies, as well as their desire to receive equitable returns on their investments. The transfer of technology does include developing countries development of their own technology.

D. Relationship Between Intellectual Property Rights and Access to Genetic Resources and Biotechnology

25. The issues relating to access to biological diversity and biotechnology are important and complex. The relationship between biotechnology and biological diversity is mutually dependent. Access to genetic resources and to biotechnology and technical information on how to use them must therefore be based on mutually beneficial arrangements. The various forms of intellectual property and their potential impact on the conservation of biological diversity and on the transfer of biotechnology must be analyzed. It is necessary to assess their potential to facilitate or hamper the long-term conservation of biological diversity and the transfer of biotechnology. Ultimately, the terms of an equitable exchange between the technology-rich North and the gene-rich South must be defined.

E. Relationship Between the Planned Legal Instrument and Existing Conventions, Agreements and Action Plans on Biological Diversity

26. It needs to be stressed that the planned legal instrument is not intended to replace or incorporate existing conventions, agreements and action plans relating to the conservation of biological diversity, which already play a very important role in the field. The planned legal instrument could aim mainly at filling existing gaps, as well as serving as a forum for co-ordination of activities and exchange of information, if so requested by the Governments in the preparatory process, by existing secretariats and by the international organizations concerned. The fact that the various existing legal instruments have different contracting parties needs to be considered in this context. The relationship and institutional links between existing conventions, agreements, action plans and the planned legal instrument should be further developed.

III. RECOMMENDATIONS

27. On the basis of the above-mentioned analysis and the ideas and conclusions that emerged during the two previous sessions of the Working Group on major policy issues, the Executive Director would like to present the following recommendations for consideration at this session of the Working Group.

A. Nature of a New Global Legal Instrument on Biological Diversity

28. A new international legal instrument on biological diversity, possibly in the form of a framework convention, should be comprehensive in scope, covering the full range of biological diversity at the intra-species, inter-species and ecosystems levels and addressing both in situ and ex situ conservation and protection of biological diversity from all significant damaging impacts. It should be in harmony with, co-ordinate, catalyse and supplement the efforts of Governments and other agencies under agreements in this field. As much technical, financial and administrative content as possible, with a commitment for implementation, should be included in the new framework international legal instrument. However, certain issues may need to be considered in separate, legally-binding protocols. As far as is feasible, these should be concluded and signed concurrently with the framework convention.

B. The Funding Mechanism

29. It is evident that a political commitment to establish a new financial mechanism or a fund is essential for the success of the planned legal instrument and the global co-operation needed to conserve the biological diversity of the planet. It should realistically provide for the transfer of resources to allow for the implementation of the convention by the poorer countries, which are also the custodians of much of the biological heritage of the Earth.

1. Sources of funding

30. All existing sources of funding should be utilized. As all countries have a common interest and joint responsibility in conserving biological diversity, the funding mechanisms should be universal in nature. One way of doing this is to operate with contributions on an assessed basis.

31. As those who most enjoy the economic benefits of biological diversity should contribute equitably to its conservation and sustainable management, the revenue that could be generated from users' fees should be explored as an attractive option to the international fund. Contributions will in this case be based on actual benefits.

32. There could be merit in agreeing that, during the first few years, contributions to the funding should be made voluntary, in order to signify good will before agreement is reached on the concrete scale of assessment or users' fees. Such contributions, however, must be adequate and not merely symbolic.

2. The use of the fund

33. Inability to ensure the collection of complete information on the likely total cost of the needs of the global conservation of biological diversity should not delay the creation of a financial mechanism or become an obstacle to reaching a decision on a financial mechanism. To allow for a decision on a funding mechanism, it should be sufficient to agree upon the order of magnitude of the cost for priority conservation needs. The range of the total cost should, however, be narrowed down. The results from the country-specific case studies should help in determining this range. The Working Group may wish to agree at this meeting on:

(a) The approximate range of the expected total cost to allow Governments to consider relevant decisions;

(b) Requesting a consultant to refine his studies further, in order to narrow the gap between the highest and the lowest estimates as much as possible using the results of the country studies.

3. The functions of the fund

34. Under the supervision of the contracting parties, the functions to be exercised by the fund should combine funding and clearing-house mechanisms, including the co-ordination, design and promotion of biological diversity conservation and assistance in technology transfer.

4. Institutional arrangements

35. Rather than create a new organization or merely expand the role of one of the existing organizations, a joint or co-operative venture of a number of lead agencies to which other institutions could be attached seems to be a feasible option. A common programme, approved by the contracting parties, would form the basis for the division of responsibilities and the allocation of funds among the participating agencies. A unit, however, would have to be attached to the secretariat, which would organize the co-operation between the agencies and prepare scientific proposals for submission to the parties. The Working Group may wish to consider the different options on how to administer such a mechanism or fund, and which organization to entrust with the lead role.

C. Access to Genetic Resources and Biotechnology

36. Genetic diversity is essential for sustainable development. The potential of biological diversity can best be exploited when it remains freely accessible to all users and if the information and technology on how to use it is transferable to all. Having a particular valuable genetic resource or the technical capability for its development must not give exclusive rights to ownership or profit. In this regard, free access does not mean free of charge.

37. Mechanisms are required to facilitate access to genetic resources and relevant biotechnology techniques, processes and products, while protecting the sovereign rights of states concerning their natural resources and the legitimate interests of biotechnology inventors. These mechanisms need thorough consideration by the Working Group. These mechanisms should, inter alia:

(a) Regulate access to and the supply of public sector germplasm and information thereon to private companies;

(b) Identify opportunities and constraints for technology transfer in developing countries and develop strategies for international investment in new technologies;

(c) Provide necessary common services to developing countries for exploring the acquisition of biotechnology and to the private sector to explore potential markets for biotechnology application;

(d) Facilitate the negotiation of agreements, that could be fair and acceptable to all parties, on the establishment of joint ventures in this area between developed and developing countries;

(e) Provide support for biotechnology research and development at public sector institutions in developing countries, including support for training and for collaborative research with public and private sector laboratories in industrialized countries, to enhance the developing countries' capability to adapt, develop and apply such technologies to their needs;

(f) Assist member countries in the preparation of national biotechnology strategies and plans for activities with clear priorities, to enable the most efficient use of local and external resources;

(g) Patent discoveries in biodiversity and, as appropriate, license them for use. This could also facilitate negotiations on access to germplasm and new technologies;

(h) Act as a source of advice and information for individual countries on relevant issues such as patents and environmental releases of genetically modified organisms.

38. These new partnerships could improve access to genetic resources and facilitate the development and/or transfer of new technologies and the systems necessary for their delivery and their application to the needs of developing countries.

39. To facilitate access to genetic resources and biotechnology, there is also a need to consider the problem of intellectual property rights in access to resources and biotechnology. This question needs to be further developed in the planned legal instrument.

D. Elements for Possible Inclusion in a Global Framework Legal Instrument on Biological Diversity

40. Taking into consideration the above analysis and recommendations, the Executive Director would like to present the elements contained in the Annex to the present note for consideration by the Working Group at its current session for inclusion in the planned global framework legal instrument on biological diversity.

E. Relationship with existing Conventions, Agreements and Action Plans

41. It is essential that the planned legal instrument provide a link with existing conventions, agreements and action plans relating to the conservation of biological diversity, to benefit from the experience which has been gained by existing bodies. *The Working Group may* wish to consider, for this purpose, the possibility of establishing a mechanism with the following tasks:

(a) Enhancement of communication through organization of annual meetings of secretariats and other relevant bodies to consider co-ordination of activities, rationalization of resources, examination of problems of mutual concern and establishment of priorities for action in areas where the basic objectives and/or activities of existing instruments are similar or closely linked;

(b) Exchange of information and documentation between secretariats and other relevant bodies. The mechanism could serve as a data-bank for this purpose;

(c) Co-operation with secretariats and other relevant bodies to standardize formats for reporting to and from contracting parties;

(e) Preparation on a regular basis of an overview report of activities of existing conventions, agreements and action plans.

ANNEX

ELEMENTS FOR POSSIBLE INCLUSION IN A GLOBAL FRAMEWORK LEGAL INSTRUMENT ON BIOLOGICAL DIVERSITY

I. PREAMBLE

1. A short but precise preamble is needed based on the following elements:

(a) Description of the aims of the Convention - the duty of humankind to conserve biological diversity for the benefit of present and future generations;

(b) Recognition of mankind's co-existence on Earth with a wide range of other living organisms, which exist independently from the benefits they may provide to humanity;

(c) Description of the problems - impoverishment of global biological resources, increasing rate of loss of biological diversity due to, among other things, degradation of habitats and pollution of the environment;

(d) Deterioration of the quality of life on earth as a result of unsound management and use of natural resources;

(e) Recognition that the States, as the stewards of biological diversity under their jurisdiction, over which they have sovereign rights, have a responsibility to conserve, develop and benefit from biological diversity;

(f) Conservation and sustainable use of biological diversity as a common responsibility of all mankind;

(g) Obligation of states to share in any increased knowledge as well as other benefits of the potential of biological diversity;

(h) Close dependence of rural and indigenous people on the potential of biological diversity, their profound knowledge of this biological diversity, and their vested interest in its sustainable use;

(i) In-situ conservation of biological diversity to secure intra-species genetic diversity, the evolutionary potential of species and the interactions between species as a primary responsibility of the planned legal instrument;

(j) Duty of intergovernmental and non-governmental organizations to assist in promoting the conservation and sustainable utilization of biological diversity on a global scale;

(k) Continuing demonstration of the cultural, ethical, scientific and economic value of biological diversity to mankind as an important incentive for its conservation;

(l) Contribution of the planned legal instrument on biological diversity conservation and sustainable utilization to the strengthening of peace, security, co-operation and friendly relations between states;

(m) Conservation of biological diversity has frequently provided the most benefits to countries which have the technical and economic capability to take advantage of it. The cost of conservation without commensurate use could be a burden, especially for developing countries.

II. DEFINITIONS AND INTERPRETATION

2. The following, as well as additional terms, will have to be defined to the extent that terms are used in the text of or annexes to the new legal instrument on biological diversity. The list of definitions is to be kept as brief as possible:

- Biological diversity;
- Conservation;
- Sustainable development;
- Sustainable use;
- In-situ conservation;
- Ex-situ conservation;
- Species;
- Wild species;
- Indigenous species;
- Endemic species;
- Species threatened with extinction at world level;
- Alien species;
- Specimen;
- Biomaterial;
- Viable population;
- Party and State parties;
- Territory;
- Conference;
- Advisory Committee;
- Fund;
- Secretariat;
- Global list;
- Protocol.

III. FUNDAMENTAL PRINCIPLES

3. The following concepts should be considered for incorporation in the legal instrument:

- Biological diversity as a heritage of mankind;

- Sovereignty of States over biological diversity under their jurisdiction and the duty of stewardship, in time and space;

- Interrelation between conservation and sustainable use of biological diversity;

- The need for conservation and sustainable utilization of biological diversity for the benefit of present and future generations;

- Equitable sharing of benefits and conservation costs of biological diversity;

- Free access does not mean free of charge.

IV. GENERAL OBLIGATIONS

4. The following elements should be considered:

(a) Joint and individual obligation to take appropriate measures to maintain and restore biological diversity at national and international levels, including the duty to co-operate with other states;

(b) Co-operation in the formulation and adoption of agreed measures, procedures and standards, and of protocols and annexes to facilitate the development and implementation of the legal instrument;

(c) Mutual assistance to achieve the goals of the legal instrument;

(d) Promotion of public awareness through formal education and community awareness programmes on the subject of the needs for and measures to conserve biological diversity at national and international levels by individual state action and/or by multilateral and bilateral co-operation;

(e) Adoption and implementation of policies to maintain and use components of biological diversity for sustainable development;

(f) Duty to ensure conservation of biological diversity within a State's territory;

(g) Duty to refrain from actions harmful to biological diversity in territories of other states as well as in areas beyond the limits of national jurisdiction.

V. MEASURES FOR CONSERVATION AND SUSTAINABLE UTILIZATION OF BIOLOGICAL DIVERSITY

5. Elements to be considered should include:

A. Measures for in-situ conservation of biological diversity

(a) Obligation to carry out initial and periodic surveys, gathering of information, drawing up of inventories and monitoring of biological diversity, within jurisdiction;

(b) Identification of biogeographic areas of particular importance for conservation of biological diversity, to be included in a Global List;

(c) Obligation to develop guidelines that establish criteria for the selection, establishment and management of specially protected areas, included in the Global List;

(d) Obligation to create networks of specially protected areas in territories within national jurisdiction;

(e) Adoption, at national and international levels, of management strategies, plans, co-ordination schemes and networking for the in-situ conservation and sustainable use of biological diversity;

(f) Adoption of plans for the recovery and rehabilitation of species, habitats and ecosystems;

(g) Reduction and control of pollution and other forms of environmental degradation which could adversely affect biological diversity;

(h) Use of wild resources on a sustainable basis;

(i) Regulation and control of the introduction of man-made and genetically modified organisms;

(j) Regulation of the introduction of alien species;

(k) In relation to biological diversity, adoption and implementation of policies promoting sustainable development;

(l) Support for land uses and activities compatible with the maintenance of biological diversity;

(m) Maintenance of local knowledge about biological diversity.

B. Measures for ex-situ conservation of biological diversity

(a) Obligation to carry out initial and periodic surveys, inventories, gathering of information and monitoring;

(b) Adoption, at national and international levels, of management strategies, plans, co-ordination schemes and networking for the conservation of biological diversity ex-situ;

(c) Adoption of plans for the recovery and rehabilitation of species through ex-situ conservation when necessary;

(d) Obligation to establish, at national and international levels, centres for ex-situ conservation and in particular for species threatened with extinction;

(e) Adoption of plans and strategies for the re-introduction of species conserved ex-situ into their natural habitats.

C. Measures for sustainable utilization of biological diversity

(a) The obligation to integrate conservation of biological diversity and its utilization into national development plans and policies by means of national conservation strategies and other suitable instruments;

(b) The obligation to ensure that utilization of biological diversity does not have adverse impacts on the rest of the environment can be met through the adoption of common standards by the Parties that respect the exploitation of certain resources, especially resources in the wild.

D. Research and training

(a) Inventories and taxonomy;

(b) Training of taxonomists, technicians and experts for field identification;

(c) Training of ethnobotanists and other specialists to contribute to the understanding of traditional knowledge in the field of biological diversity and natural resource management;

(d) Research on and development of technologies;

(e) Research on and training in the management of protected areas;

(f) Research by and training of specialists in the use of biological diversity in sustainable agriculture;

(g) Improved understanding of the ecosystem function of biological diversity and its management requirements;

E. Education and public awareness

(a) Formal training, through schools, universities and other fora;

(b) Non-formal training, including training for the general public and other groups;

(c) Education for local populations in areas of special interest for the conservation of biological diversity.

F. Environmental impact assessments

(a) Obligation of States to assess the environmental impact of projects and activities which may adversely affect biological diversity, in particular those involving the introduction of alien species, genetically modified organisms and the re-introduction of species into their natural habitats;

(b) Development of guidelines that set standards for making environmental impact assessments.

VI. AVAILABILITY TECHNOLOGY AND ACCESS TO BIOLOGICAL DIVERSITY, AND INFORMATION THEREON

A. Availability of and access to biological diversity

(a) Availability of and access to genetic material conserved in-situ and ex-situ for purposes of scientific research, training, surveying, monitoring;

(b) Availability of and access to genetic material for uses other than scientific research, training, surveying, and monitoring;

(c) Preferential treatment for countries of origin of germplasm with regard to access to genetic material and varieties derived therefrom.

B. Availability of and access to relevant technology and information

(a) Patents and proprietary rights derived from genetic diversity under national jurisdiction and control;

(b) Patents and proprietary rights derived from genetic diversity beyond national jurisdiction and control;

(c) Access to scientific research, training and surveying;

(d) Access to know-how;

(e) Access to information, including traditional knowledge;

(f) Role of the public and private sectors.

VII. TRANSFER OF TECHNOLOGY FOR THE CONSERVATION AND UTILIZATION OF BIOLOGICAL DIVERSITY

(a) Obligation for developed countries to tranfer technology to the gene-rich but technology-poor developing states on a non-commercial and preferential basis;

(b) Undertaking by the parties, through national policy and legislation, to ensure that private enterprises within their jurisdiction transfer technology to the poorer developing countries, while protecting the interest of the private sector. Parties to report on measures undertaken pursuant to this undertaking;

(c) Improvement of access to know-how through exchange of information via the institutions established by the planned legal instrument (especially the secretariat);

(d) Mutual co-operation in training of experts in the field of both conservation and utilization of biological diversity;

(e) Joint ventures between the technology-rich states and the gene-rich states in the field of biotechnology and conservation;

(f) Co-operation in relevant scientific research;

(g) Establishment of a mechanism to ensure the acquisition of technology from the technology-rich developed states to the gene-rich developing countries by providing funds to facilitate the necessary access to patents.

VIII. TECHNICAL ASSISTANCE TO DEVELOPING COUNTRIES

(a) Obligation of the institutions set up under the planned legal instrument to provide technical assistance to developing countries in the conservation and utilization of biological diversity;

(b) Commitment of the developed states to provide, outside their contributions to the institutions set up under the planned legal instrument, technical assistance to developing states on a multilateral and bilateral basis, subject to mutual agreement;

(c) Establishment of a "clearing-house" mechanism within the institutions set up by the planned legal instrument to facilitate the provision of technical assistance from the developed states to the developing states.

IX. FINANCIAL MECHANISMS

A. Financial needs of the legal instrument

(a) Overall level of financial resources requires;

(b) Obligation of all countries, in particular the industrialized countries, to provide genuine additional resources to cover the financial needs to operate the legal instrument, and for the conservation and sustainable use of biological diversity at the national and international levels;

(c) Obligation of industrialized countries to provide the necessary funding and other mechanisms for technology transfer;

(d) Multilateral and bilateral assistance for the conservation of biological diversity and technology transfer;

B. Financial mechanisms for the legal instrument

6. Taking account of the totality of financial resource necessary, it will be worthwhile to examine the need for a fund or funding mechanism that should be established, to facilitate the financial transfer. This may well require (i) co-operative arrangements with existing multilateral and bilateral sources of funding; or (ii) the consideration of a special fund; or (iii) both.

X. RELATIONSHIP BETWEEN THE PLANNED LEGAL INSTRUMENT AND EXISTING INSTRUMENTS, AGREEMENTS, PROGRAMMES AND ACTION PLANS ON BIOLOGICAL DIVERSITY

(a) The legal instrument is not intended to replace existing instruments related to the conservation of biological diversity. Such instruments may be re-negotiated as protocols to the planned legal instrument;

(b) Co-ordination of programmes and plans under relevant legal instruments and exchange of information on activities;

(c) Options for secretariats which have an international character to become parties to the planned legal instrument;

(d) Provision of financial assistance to existing secretariat and programmes;

(e) Eligibility of existing agreements, action plans, programmes to become protocols;

(f) Efficient use of limited budgetary resources.

XI. INSTITUTIONAL MEASURES AT NATIONAL LEVEL

(a) Establishment of national bodies, including advisory boards, to pursue the aims and goals of the legal instrument and to co-ordinate activities related to the conservation and sustainable use of biological diversity;

(b) Obligation to take legislative action to ensure the conservation and sustainable use of biological diversity;

(c) States may adopt stricter measures than those contained in the legal instrument.

XII. INTERNATIONAL CO-OPERATION

(a) Status of co-operation and co-ordination of international activities in conservation, evaluation, documentation, utilization and exchange of genetic material and information;

(b) Intensified activities and support for countries;

(c) Support for international organizations active in the field of biological diversity;

(d) Development of a Global List of areas for the conservation of biological diversity;

(e) Technical assistance;

(f) Development of a mechanism to determine priority actions under the legal instrument.

XIII. INSTITUTIONAL ARRANGEMENTS FOR THE PLANNED LEGAL INSTRUMENT

7. A series of different options, approaches and alternatives should be considered in dealing with the institutional arrangements. The following elements, together with additional elements, should be considered as appropriate:

- Conference of the Parties;
- Secretariat;
- Scientific advisory panel or committee;
- Reporting system;
- International funding mechanism to handle operational costs for the planned legal instrument, financial needs for conservation and sustainable use of biological diversity and financial resources for technology transfer;
- Mechanisms to handle transfer of technology and technical assistance;
- A "clearing-house" mechanism.

XIV. SETTLEMENT OF DISPUTES

(a) A provision similar to that found under the Vienna Convention for the Protection of the Ozone Layer could be considered;

(b) Mediation;

(c) Good offices.

XV. OTHER PROVISIONS

- Procedure for adoption and amendment of annexes;
- Procedure for adoption, entry into force, and amendment of protocols;
- Procedure for amendment of the legal instrument;
- Relationship between the legal instrument, its protocols and annexes.

XVI. FINAL CLAUSES

- Signature;
- Ratification, acceptance, approval;
- Accession;
- Entry into force;
- Reservations;

- Withdrawals;

- Depository;

- Authentic texts.

XVII. ANNEXES

(a) Annexes to the Convention are an integral part of the Convention. While some of the matters listed below may be provided for in the Convention, it may be necessary to make detailed and more elaborate provisions with respect to them in the annexes. The advantage is that the amendment procedure for the annexes could be simpler than that for the Convention, hence they can be adapted to changed circumstances.

- Global list of protected areas;

- Guidelines for environmental impact assessment;

- Machinery for arbitration procedure;

- Guidelines for introduction of genetically modified and alien species;

- Any elements that the parties might consider need amendment, as scientific evidence or needs arise.

XVIII. PROTOCOLS

8. Existing instruments, agreements, action plans, and programmes might be re-negotiated as protocols, as the parties to these may decide.

9. Any area that the Parties may decide is appropriate for protocols may be developed simultaneously with the convention or at a later stage.

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Biological Diversity: Global Conservation Needs and Costs*

Executive Summary

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BIODIVERSITY: GLOBAL CONSERVATION NEEDS AND COSTS

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EXECUTIVE SUMMARY

1. Biological diversity (or biodiversity) refers to the variety of and variability among living organisms, and the ecological complexes in which they occur. It embodies genetic diversity, species diversity and habitat and landscape (including ecosystem) diversity. The areas of basic global conservation needs identified by the Ad Hoc Working Group of Experts on Biological Diversity, at its second session in February 1990 should form the basis for a framework of a global strategy for conserving biological diversity over the next 10-20 years. Such a global strategy is urgently needed and should consider the following six elements:

i) Formation of a consensus on international priorities for maintaining biodiversity;

ii) Provision of a framework for detailed Regional Action Plans to stem the loss of biodiversity;

iii) Opportunities to use the Regional Action Plans to benefit local and indigenous populations;

iv) Development of an Emergency Action Plan for Protected Areas for regions that require special attention, and for new Protected Areas needed in the regions that scientists agree have the greatest biodiversity;

v) Research into the identification, clarification, promotion and sustainable use of tropical biological resources outside the main band of species now exploited;

vii) Research into the ways in which indigenous people harvest useful substances from tropical wild lands on a sustainable basis: and

vii) Cost of obtaining patent protection for new medicines and other chemicals derived from tropical species in order to overcome the private sector's reluctance to spend money on research in this area.

2. The implementation of such a global strategy for conserving biological diversity and promoting the sustainable use of natural resources in the future demands:

i) An understanding of the pace and unpredictable pattern of technological innovations for transforming natural resources into useful products and commodities, and their impacts on environmental services, in response to the changing perceptions of human needs, sustainable future and economic livelihoods concurrently at local and global levels:

ii) Reliable information for resource development and environmental management;

iii) Integrative strategies for conserving biological diversity with cultural and sustainable development; and

iv) Regional and global coordination of plans and programmes which promote local adaptation and implementation.

3. Implementation of a global strategy will require additional funds even though national states and development assistance agencies already expend billions of US dollars annually for nature protection and environmental management. Very little new information is being currently generated about biological diversity in the tropics and marine environments. This is where much of it resides and this information is of global significance. This situation is exacerbated by computerised collations which appear to provide "global" figures about biological diversity often without a comprehensive understanding of the complexity of the field.

4. It is difficult to estimate the magnitude of additional funds required for a global strategy due to the paucity of information available, and shortcomings in its clarity and reliability. The World Resources Institute has estimated the need for additional funds amounting to US$ 20-50 billion per year over a decade for a global strategy; the World Wide Fund for Nature Conservation (UK) has estimated the need for an additional US$ 100 million per year; and the Union of the Soviet Socialist Republics has estimated its additional needs in terms of US$ 1.00 billion per year.

5. While there is considerable variation in the figures and uncertainty about their basis, additional funds at least of the order of hundreds of millions to units of billions US dollars per year appear necessary for surveys and inventories, identification and authentication, technical assistance and cooperation in research, curation, education and training, traditional uses, management strategies and plans, monitoring and conservation coordination, priority projects and for the transfer of technology. This is necessary to conserve 10-20% of the biological diversity especially in tropical and marine environments over the next 10-20 years. The availability of any additional funds will have to be phased to match their absorptive capacity especially in developing countries in the tropics.

6. Formation of a consensus on international priorities for maintaining biological diversity will require regional and international meetings and consultations. International conservation priorities should include large areas with high and low biological diversity, besides small areas with high endemism, especially in the tropics and the marine environments. Consensus formation should be based on especialist consulations , broader technical consultations, governmental consultations, public awareness campaigns and/or consultations, and international advisory meetings. Although the costs of consensus formation are difficult to assess, they should require additional funds of about US$ 10 million per year in view of the cost of coordinating the International Biological Programme (IBP) at US$ 1-3 million per year and the costs of programme coordination of the World Conservation Union (IUCN) at US$ 2-3 million per year.

7. Regional Action Plans to stem the loss of biological diversity will require surveys and authentication of rich and threatened areas, technical assistance and cooperation for biological research, depositories and repositories, socio-economic research, education and training, management

strategies and plans, conservation and sustainable use technologies, monitoring and coordination, and priority demonstration projects especially in tropical and marine environments. In particular, they will need:

i) Reviewing of biological diversity especially for the tropics and the marine environment, and for microorganisms, invertebrates and lower vertebrates;

ii) Assessment by local communities, provinces and countries of their needs for knowledge on spatial areas, habitat and ecosystem types, taxonomic and species ranges, genetic variability, survey and use technologies, and technicians and expertise;

iii) Surveys of the state of depositories curating genetic and species diversity ex situ, and (for protected areas) harbouring unique and representative habitats and ecosystems in situ especially in the tropical and marine environments; as well as of repositories holding information on biological diversity at different levels;

iv) Assessments of the state of identification and authentication of biological diversity in tropical and marine environments especially in relation to taxa and classification systems of importance to the local and international economy, to management and technological innovation, and of importance to the strategic training of specialists;

v) Assessments of ecological processes important at the local, provincial and national levels for sustaining biological diversity in terms of key factors operational at each level and between different levels, the role and nature of perturbations, the causes of high species diversity and endemism, and the causes of threat and extinction;

vi) Involvement of various development sectors already engaged in resource transformation in assessing and regulating their own adverse impacts on biological diversity;

vii) Promotion of research for the conservation of biological diversity with focus on: the relation of species and landscape/seascape diversity to technological change; global biogeographic classification systems especially for tropical and marine environments; species diversity as long-term indicators of technological change; and effective conservation of genetic resources of wild species in protected areas systems;

viii) Development of a standardized international approach for assessing the effects of various technologies threatening biological diversity, for promoting an exchange of experiences, and for enabling integrated assessments of biological diversity based on their multiple outputs or benefits (e.g. energy, food, industrial materials) using an expanded "cost-benefit" approach;

ix) Training of technical experts in taxonomy and classification, autecology and community ecology, curation and husbandry, information storage and retrieval, and in survey and monitoring techniques, for conserving biological diversity of national and regional importance;

x) Assessing the effectiveness of various on-going regional action plans in promoting research, training and development of technologies for conserving biological diversity in situ and ex situ; focusing on plants, microorganisms and terrestrial and aquatic invertebrates for species conservation, and on tropical and marine environments for habitat and ecosystem conservation; catalysing national programmes; promoting development and sustainable use of resources, and the development of appropriate tools for integrated assessment; training local expertise in conservation technologies; and in establishing and maintaining networks of cooperating individuals and institutions;

xi) Incorporation of information management systems into the regional action plans;

xii) Assessment of protected areas in the tropics and the marine environment in relation to the ecological and socio-cultural processes that enable them conserve biological diversity, and to hierarchical linkages that could make them useful for global monitoring like the Biosphere Reserves;

8. The cost of discovering new varieties and variability suggest the need for tens of billions of US dollars. The Food and Agriculture Organization of the United Nations in collaboration with UNEP and other international organizations spends about US$ 11.5 million per year on ex situ and in situ depositories. The Tropical Forest Action Plan which spends US$ 1.1 billion per year allocates only 8% to conservation. On the basis of US$ 1-5 million per year per country and US$ 3-5 million per year per region, additional funds at least amounting to hundreds of millions of US dollars would be required.

9. Use of the Regional Action Plans to benefit local and indigenous populations would need technical assistance and cooperation to demonstrate the rights of the indigenous peoples, studies documenting traditions transmitted orally, and priority projects modernising sustainable use technologies. In particular, it will need:

i) Incorporation of information management systems that would also focus on traditional approaches and sensitively manage the interests of the indigenous peoples;

ii) Promotion of a six step process to conserve cultural diversity and benefit from it by: (a) giving appropriate value to the traditional rights, knowledge and skills of the indigenous peoples; (b) taking special measures to protect the rights of the indigenous peoples; (c) providing information on traditional resource management systems; (d) promoting the application of traditional wisdom to modern resource management (e) designing projects which benefit the indigenous peoples; and (f) designing projects which benefit from traditional knowledge.

10. In this regard, there were no estimates available except for US$ 900,000 per year in Chile. The traditional funds required for studies, technical assistance and priority projects in the above mentioned area should be around US$ 100 million per year.

11. An Emergency Action Plan for Protected Areas for regions that require special attention should include surveys of small and degraded areas, identification of new areas of high diversity for protection, monitoring of

threatened areas, and technical assistance for restoring and rehabilitating degraded areas and managing threatened areas.

12. The costs for such an Emergency Action Plan are difficult to estimate. Based on the need for Madagascar to spend US$ 6 million per year over 20 years and the expenditure of US$ 15 million per year by Denmark in landscape rehabilitation, there is a need for hundreds of millions to units of billions of US dollars for this Action Plan.

13. Research into the identification, clarification, promotion and sustainable use of tropical biological resources outside the main band of species now exploited will require focus on under utilized and marginal species, species associations and community types and landscape mosaics which have been discussed under Regional Action Plans. FAO spends at least US$ 300 million per year on testing and breeding programmes. The Consultative Group on International Agricultural Research spends another US$ 200 million per year. It would be reasonable to expect an additional US$ 100-300 million per year for broadening the use of the species diversity authenticated.

14. Research into the ways in which indigenous peoples harvest useful substances from tropical wild lands on a sustainable basis will need to focus on surveys of human management of common property and sustainable use technologies, and technical assistance, on biochemical screening of biomaterials and on demonstration of traditional use patterns. Some of the elements of this programme have been outlined earlier. There were no estimates available. On the basis of US$ 2-5 million per year per region, additional funds in the low hundreds of millions of US dollars would be required.

15. Obtaining patent protection for new medicines and other chemicals derived from tropical and marine species would require additional funds for promoting patent protection and the transfer of technology. Patent protection is complicated, expensive and requires sophisticated scientific and legal know-how to benefit from it. It costs a fraction of US$ 1 million to secure a good patent protection. Where biotechnological advances have been made on access to tropical species, there will be need to develop some mechanisms for compensating the natural sources of original genetic material. On the basis of US$ 1-5 million per year being available per region, additional funds of up to US$ 100 million would be required for promoting patent protection in tropical developing countries.

16. Developing countries, particularly in the tropics, experience high population growth rates which are a potential destabilising factor. There appears little scope for slowing down their economic growth rates. Instead, additional funds for conserving biological diversity should be targeted to promote the discovery of altenative economic livelihoods for their peoples.

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Current Multilateral, Bilateral and National Financial Support for Biological Diversity Conservation*

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CURRENT MULTILATERAL, BILATERAL AND NATIONAL FINANCIAL SUPPORT FOR BIOLOGICAL DIVERSITY CONSERVATION

EXECUTIVE SUMMARY

The purpose of this study is to make recommendations on the funding requirements for a proposed global conservation of biodiversity, following an assessment of current expenditures and activities in this field. The need for an international convention governing the conservation of biodiversity was identified at the second session of the Ad Hoc Working Group of Experts on Biological Diversity, held in Geneva in February 1990.

The first section of the report examines the problems of biodiversity loss, and the need for maintaining biodiversity. In order to achieve conservation of biodiversity, a population greater than the critical minimum should be maintained in its natural habitat. There are no accurate estimates of the total number of species, but estimates have been made of the current rate of loss of species; between 5 and 30 per cent of existing species are threatened with extinction over the next 20-30 years. Biodiversity can be lost through habitat modification, overexploitation of natural resources, chemical and global pollution and the introduction of new species into an environment. The reasons for maintaining biodiversity are: the values of species derived from their very existence, and economic and the ecological benefits derived from the exploitation of natural resources. Until recently, there has been little effort to place monetary values on these benefits which, combined with institutional difficulties of capturing these benefits in a sustainable fashion, has resulted in an alarming rate of loss of species. Because of the uncertainty of future benefits of conservation and because many natural resources are common property, the role of governments is particularly important in ensuring that sufficient resources are devoted to conservation. Furthermore, the agreement between governments to conserve global resources is important. At the same time it has been shown that governments can, through inappropriate policies, be as responsible for the loss of biodiversity as any other 'cause'. Such 'perverse' policies work through tax credits and subsidies and need to be corrected if the problem of biodiversity is to be resolved.

Since many developing countries are responsible for the conservation of a large proportion of natural resources but are lacking in the resources required to undertake the necessary actions, it will be necessary for developed countries to provide financial assistance to developing countries from public and private sources to undertake the measures required, as well as for the developing countries themselves to mobilise new sources of funds for conservation.

The second section examines current support for conservation measures, including an estimate of funds provided to developing countries for the purposes of biodiversity conservation. Four types of action have been taken to date: measures to protect a particular habitat, to protect species *in situ*, to conserve species *ex situ*; and measures to curb the

contamination of the biosphere with pollutants. In some cases these measures have been formalised through conventions; and funded and implemented by international organisations, by developing countries themselves and by non-government organisations.

An attempt has been made to estimate the expenditures on biodiversity conservation activities in developing countries. Expenditure data on all conventions were not available, but for the four major global conventions, a total of $6.3 million a year had been allocated. Expenditure by developing countries on conservation is very small and is not usually even shown in government accounts. Data on international organisations' expenditure on conservation activities were collected, which showed that, on the basis of the latest year for which data were available, these organisations spend about $58 million a year on biodiversity related projects. This amounts to a very small proportion of total expenditure on environment related projects; for example, of the 1988 UNDP budget only 3% was allocated for biodiversity projects. The largest component of multilateral expenditure on conservation is undertaken and administered by FAO, partly with its own funds, and partly with funding from UNEP, UNDP and other agencies. The most important bilateral donor countries in this field are the United States and the Scandinavian countries. The US is estimated to have spent bilaterally funds (both government and non-government) of $37.5 million in 1987 for biodiversity conservation in developing countries. Unfortunately similar figures were not available for the other countries.

These expenditure estimates highlight the relatively low priority currently being given to biodiversity conservation, by developing countries, developed countries and international organisations.

If an overall estimate of the flow of assistance to developing countries were to be made, it would amount to roughly $228 million. This includes $58 million in multilateral aid, and an estimated $170 million in bilateral aid. The later figure is very approximate, and is based on the assumption that other countries contribute to biodiversity in the same proportion as they do to total aid.

The areas which require funding are identified in the third section, and estimates made of the resources required to achieve the goals of biodiversity conservation. In addition, the best means of mobilising the required funds and the role of an international convention in achieving the goals of biodiversity conservation are also addressed. The recent Ad Hoc Working Group of Experts on Biological Diversity identified the following areas which require further funding:

(a) surveys, inventories and identification of biological diversity rich areas;
(b) development of technologies related to the conservation and sustainable use of biological diversity;
(c) technical assistance for research, training, education, public awareness etc;

(d) management strategies and plans for biological diversity rich areas, including recovery plans, coordination of various conservation activities and development of national conservation strategies;
(e) regular monitoring of the status of the world biological diversity;
(f) coordination of conservation strategies with policies for sustainable economic development;
(g) priority conservation projects; and
(h) transfer of technology.

Each of these is discussed in turn below.

(a) As already noted, there are very little data on the biodiversity of the planet and the management of natural resources requires information on the quantities of species and on their habitats. Surveying species is expensive but techniques are being developed to use local populations in the work and thereby cut the overall costs. As the benefits of improved information on biodiversity are to be gained by users of products derived from natural sources, the funding for this activity could partly from taxes on royalties from patented biological materials and possibly from a tax on tropical timber imports.

The overall cost of undertaking this activity is potentially enormous. Estimates indicate costs of around $330 million to survey an additional 10% of the plant and other species, ten times that amount to conduct complete habitat and ecosystem surveys, and ten times that amount again to conduct complete genetic surveys. It is inconceivable, however, that such activities could be carried out in a short period of time. It would make sense to think in terms of a program over a period of 20 years or more. At the same time there would be a great need to prioritise work in this area and to relate that to some estimates of the potential benefits of alternative activities.

(b) In the development of technologies, biotechnology is the critical area. It can assist in the conservation of genetic resources and evaluation of germplasm for specific traits. Again this could be funded by enterprises that profit from the use of biotechnology. Initially a small budget (perhaps derived from the kind of taxes identified above) could be a beginning. This could also be used to support research into biotechnology in developing countries.

(c) Training of future conservationists and other professional staff is an important area for assistance. A considerable part of existing resources are devoted to this activity but there is strong feeling that more needs to be done. The IBPGR have identified the need to increase their training programme by around 400-500 individuals at the postgraduate level. IBPGR has, of course other activities which it supports. These are discussed further under the other categories. Funding this would cost around $10 million a year. Another estimate is provided by IUCN, indicating the need for 7500 more taxonomists. Providing these over a ten year period would cost around $45 million a year.

(d) Management strategies for protecting and conserving areas of importance in terms of biological diversity need to be considerably strengthened in developing countries. Existing resources are inadequate and more funds could be mobilized by exploiting the commercial values of these sites. However, it is important to ensure that the funds so raised are actually allocated to conservation. The same applies to proposals such as an eco-tourism tax.

Another fairly successful method of raising resources for conservation has been through debt for nature swaps. In the five countries where they have been tried they have contributed to the protection of small but important sites. If they are to be expanded, however, debtor governments need to be more forthcoming and local NGOs need to develop a capability to implement the programmes. In some cases, it has been proposed that sites be managed internationally, which may require support from a central fund (after allowing for any revenues from the management of the site itself).

Finally under the general heading of coordination there is a clear need for an umbrella body to undertake such work. This is discussed further in the final section of the report.

(e) Regular monitoring of the state of the world's biological diversity is an essential task that would extend the work already being undertaken by the IUCN and other bodies. However, a small programme to synthesize the activities of all the agencies involved in the field would be very helpful. A initial budget is proposed for this, of around $2 million per annum. This would also permit the commissioning of primary data collection in some areas.

(f) Appropriate national policies for sustainable development need to be coordinated with the conservation strategies. This requires, on the negative side, the impacts of macroeconomic policies, such as taxes and subsidies, to be examined with regard to their effects on the biological diversity; On the positive side, it requires policy instruments to be designed so that incentives are present for countries to exploit their resources in a sustainable manner, thereby enhancing the chances that conservation takes place. The main assistance that can be offered in this regard is with respect to an economic input into the National Conservation strategies and Conservation Management Plans, and for an environmental perspective to be included in the macroeconomic planning. Both are of great importance and would imply technical assistance to developing countries, as well as some training. UNDP is the most suitable institution to carry this out.

(g) Priority conservation projects are an important area for future funding. There are some sites and species where, unless emergency action is taken, habitats are threatened and extinction is a real possibility. One of the tasks of any putative organisation dealing with biodiversity would be to identify those areas and species which could draw on a special fund.

(h) Finally there is the transfer of technology. New methods of conservation, and products developed through biotechnology can help the process of conservation. Those undertaking the development would have to be compensated if they were to give access to their technology to the developing countries. This would require funds from a central source. At the same time, the benefits of the commercial exploitation of products should be more equitably shared between those concerned with research and development, the plant breeders and the farmers. The FAO Commission on Plant Genetic Resources addresses some of these issues. Another possibility is to give suppliers of genetic resources preferential treatment to the products obtained from gene banks established with international funds.

The final section of the report looks at the reasons for a new convention on biodiversity and what its terms of reference should be. First there is a need for a global strategy on biodiversity and that can only be coordinated through an international agreement. Second, although existing conventions cover many conservation issues, there are still gaps that need to be filled.

Present conventions address specific issues but not the whole area of biodiversity as such. Second, they do not concern themselves with the transfer of resources and support for biodiversity conservation in developing countries. Some link between the stated objectives of conservation and the commitment of parties to support conservation in a global context is required.

It is essential, of course, that any new convention take account of the existing conventions and the activities that they support and not duplicate them. The treaty needs to ensure that the benefits of biodiversity protection are reflected in the policies of the member countries that impinge on biodiversity. It also needs to involve itself with issues of international transfers of revenues from taxes on products derived from the commercial development of biodiversity in developed countries. The framework within which such taxes would be levied would be a matter of concern for the convention. Finally it needs to act as a facilitator for the private sector in developed countries to transfer its technology to the relevant institutions and individuals in the developing countries.

One question addressed at the beginning of this report was to do with the size of the fund required to achieve the unmet conservation needs of developing countries. It is not possible at this stage to give an overall figure for this. Certainly many of the required resources do not need to be raised from a central fund, but to be mobilised from a more effective commercial (but sustainable) exploitation of the habitats and species in the developing countries, as well as from non-government direct assistance. This includes tourism, use of forest products, and wildlife. However, additional resources will be needed from a central fund, to which member countries should subscribe. This would be channeled through existing institutions such as UNEP, FAO, UNDP and the Development Banks and would cover support for training, priority management of sites and

species, transfer of technology in appropriate areas and monitoring of global changes in biodiversity. From the analysis in this report it would appear that the size of such a fund is more likely to be supply constrained rather than constrained by the demands for further work in this area. Limiting factors will be: the capacity of developing countries to undertake and organize the relevant work, and the perceived benefits of individual parts of the program to those who stand to gain in a direct sense from it. In the light of these consideration it is unlikely that the fund required could be very large; certainly not in the first instance of the order of billions of dollars as stated in a recent World Resources Institute report.

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FRAMEWORK LEGAL INSTRUMENT ON BIOLOGICAL DIVERSITY: AN ANALYSIS OF POSSIBLE FINANCIAL MECHANISMS*/

Executive Summary

*/ A study prepared by Yusuf J. Ahmad, Senior Advisor to the Executive Director.

I. INTRODUCTION

1. In considering the subject a number of interrelated issues arise: (i) the unprecedented present scale of genetic erosion threatens an ecosystems collapse and thus constitutes a threat to all nations; (ii) the animal and plant species in question serve a number of critical and increasingly important industrial, medicinal and other purposes; (iii) the loss of a unique, unstudied organism will involve an irreversible loss to science; and finally (iv) the conservation of biological diversity requires a level of financial resources and scientific and technical know-how that is not easily available to the habitat countries. It is in the light of these considerations that international responsibility for the conservation of biological diversity must be evaluated.

2. Genetic resources have a number of functions in production. Of particular importance are supplies of medicinal and food resources. A large variety of pharmaceutical drugs (annual sales estimated at between $8-20 billion) derive from plant and animal species. One fourth of all prescription drugs are said to contain an active ingredient derived from plants. Many drugs that are now synthesized (e.g. histamines, contraceptives, cortisone, etc.) were originally discovered in wild plants. It is estimated that 70 per cent of all plant species so far known to have anti-cancer properties are tropical plants, and the tropical forests contain literally thousands of species whose potential has not yet been tested.

3. The economic and social value of biological diversity is consistently underestimated, largely because neither public authorities nor consumers and producers are receiving the correct economic signals from the market place. The market prices of the genetic resources and functions do not reflect their real scarcity value or the ecological costs incurred by their use. These signals encourage individuals, industries and Governments to further exploit these resources.

4. Market failures reflect (i) the fact that some markets are not operating effectively and (ii) that some markets do not exist. Policy failures are reflected in the shape of taxes, concessions, subsidies, price controls and other fiscal measures. They stem from both the application of ill-considered policies with negative impacts and from deliberate support for vested interests. They also stem in large measure from the assignment of proprietary rights in national legal systems, under which terms these biological resources often remain outside the market system and hence are considered free goods.

5. In dealing with the loss of biological diversity, anticipation and prevention are likely to be more effective and less costly than corrective measures. It is important that the international community take account of the full costs of the loss of the use value, the option value and the existence value of genetic resources and reflect these costs in the transfer of the necessary funds required, as well as in the establishment of appropriate financial mechanisms for the purpose.

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II. INTERNATIONAL RESPONSE

6. It is important that the transfer of financial resources should be adequate, and the financial mechanisms established should be effective and efficient, in order to reduce the current loss of biodiversity. At the same time, it is now clear that there is a serious shortfall in funding for the maintenance of the environment.

7. It is necessary to assess the financing needs of the developing countries in three parts. First, there are the conventional needs for development assistance. Socond, there is the need for financing to undertake national sustainable development programmes effectively, or to cover what may be called the unmet conservation needs of the developing countries. Third, there are the financial requirements to meet the emerging planetary problems. No accurate or even approximate estimates of financial requirements to meet the different scenarios of abatement or containment have emerged so far. The extent of financial transfers within a Framework Legal Instrument on Biodiversity is being worked out on a technical level, which will be subject to political bargaining later.

8. The developing countries consider that any financial transfers undertaken should conform to a number of basic desiderata; notably, additionality of the funds in terms of levels, sources and uses; concessionality of assistance, in the form of grants and highly concessional loans, and especially not subject to conditions or leverage on structural adjustments etc.; a new financing mechanism, that is equitable and efficient, and focused on preventing the loss of biological diversity; incremental costs, funded by developed countries to cover all additional expenditures; etc.

III. FUND RAISING

9. Although some Governments are already investing in national conservation projects and multilateral/bilateral donor agencies are also taking up such projects and programmes, these flows are inadequate for quantitative and qualitative reasons. The quantity of available resources is unlikely to be increased in the near future through higher taxation or increased lending by multilateral financing institutions raising funds in the capital markets for the purpose. As to quality, by their very nature and long term gestation periods, programmes to deal with the loss of biological diversity must depend on high levels of concessional funding.

10. Basically, what is at issue is insurance against a possible future risk. In order to cover the risk, insurance premiums are necessary. Such insurance premiums are normally a percentage of net savings (say between 5 and 10 per cent). Since many of the habitat countries are least developed countries or countries with a net domestic savings level that is inadequate for pressing development needs, their contributions (insurance premiums) could be met by the international community. There is broad agreement among many economists that when there is a planetary threat leading to a damaging impact on the global commons, investment expenditures for conservation strategies cannot be carried out by commercial loans or with the use of conventional assistance earmarked for economic and social development purposes.

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11. The other aspect of the matter is raising the funds domestically. It is necessary to pay close attention to users' fees and other charges (e.g. fees for certain uses of biodiversity: the exploitation of germplasm for breeding programmes or the development of new drugs; harvesting in fishery, forestry or of authorized wildlife products; recreational uses in the promotion and gains from tourism; the recycling and disposal of wastes; etc.) that help to internalize the economic and environmental costs of loss of biodiversity within the operational cost of resource use. The users' fees could accordingly (i) raise considerable funds for international purposes; (ii) curb excessive use of genetic resources; and (iii) provide a more effective and efficient ecological control mechanism.

IV. FUND ADMINISTRATION AND MANAGEMENT

12. The financial mechanisms sought to manage the financial transfers could be a new Fund, or a new facility or a "window" in an existing institution (e.g. the World Bank), or co-operative arrangements, based on comparative advantage, among a number of international organizations (e.g. UNEP, World Bank, FAO, UNDP and others) or a combination of all of these. The establishment of an individual Fund under the control and supervision of the Parties needs further consideration. At the heart of the matter are two issues. First, whether an arrangement of this nature could induce a sense of global responsibility, and could thus redress the free-rider problem, since all countries will be sharing a common burden. Second, whether and to what extent contributions to such a Fund could be supplemented by financial technical resources coming from existing multilateral/bilateral sources. These issues should be considered in the context of (i) international arrangements currently under consideration for financial and technology transfers in terms of the Montreal Protocol; (ii) the contribution of existing multilateral institutions, such as FAO, IFAD, OGIAR, TFAP, IUCN, UNDP, World Bank; and (iii) the possibility that the level of contributions from different sources could fall short of the actual needs, so a "safety net" in the form of a residual Fund should be in place.

V. CONTRIBUTIONS AND DISBURSEMENTS

13. Contributions to such a Fund could be from a multiplicity of sources, for example, contributions, paid by Parties on an agreed basis; licence fees and royalties, arising from intellectual property rights vested in the Fund; funds raised by collections and receipts from events organized for the benefit of the Fund; etc.

14. There must be a clear understanding on burden sharing amongst donors: the scale of assessment could be a percentage of the GNP or related to industrial and commercial exploitation of genetic resources or trade in such resources during the past 5 years.

15. Payments from the Fund will be made for the financial and technical secretariat needed to service the Fund, and to provide certain general support functions, such as the organization of meetings of the Contracting Parties and other technical meetings, liaison with international and national research and

technical organizations, as deemed necessary, maintenance of an updated register of all designated areas for the purpose of ensuring the conservation of biological diversity, etc. More substantively, funds will be made available to meet basic conservation needs. The channelling of funds, through grants or loans on concessional terms, to the Parties or to certain organizations to enable or assist them to undertake the conservation of biological diversity could be either through Government or with their concurrence.

VI. RESIDUAL ISSUES

16. There are also certain unresolved issues relating to the administration and management of the Fund or the financial mechanisms put in place. If it is independent Fund, it will need to be administered by the Parties. The Parties may wish to elect, on the basis of equitable geographic distribution and periodic tenure, an Executive Committee to administer the Fund. Grants and loans made from the Fund, on the basis of assessments by the secretariat, will follow decisions made by the Executive Committee. In the case of financial mechanisms other than a Fund, these functions would need to be negotiated. Clearly, the countries concerned must participate in the decision-making process if the sense of global interdependence and of shared responsibility is to be realized.

17. The time frame for providing assistance would appear to depend on the rate of extinction of species reaching an equilibrium level or when the number of participating countries falls below an agreed amount. The Fund or financial mechanisms established will then be terminated and the remaining assets distributed in an equitable manner to those who had made initial contributions.

18. The activities of the Fund or funding mechanisms shall be in pursuance of a Long-Term Action Plan for the conservation of biological diversity and, in that context, shall cover a list of priority conservation projects.

VII. OPERATIONAL GUIDELINES

19. Two operational guidelines can be drawn up: first, the financial mechanisms developed must be regarded as a first approximation only. This is because a range of critical issues remain unresolved so far. Second, inadequate financial transfers and inappropriate financial mechanisms do not help to lighten the burden on the habitat countries to an extent and in a way that will ease the pressure on the unsustainable exploitation of genetic resources.

VIII. CONCLUDING REMARKS

20. An analysis of the nature, scale and timing of the transfer of resources reveals a number of pertinent considerations:

- The habitat countries are at present largely unable to obtain the economic and financial benefits that arise from the conservation and management of the earth's biological resources;

- The designation of specific land areas to conserve biological diversity often conflicts with alternative land uses in developing countries; adequate financial transfers could provide a substantial incentive to adopt what could otherwise be politically difficult decisions;

- The availability of additional, concessional funds could, when coupled with effective project design and development, help to focus attention on biological diversity needs and obtain support for further investment programmes;

- Financial resources are likely to be forthcoming at adequate levels if the early focus is on action programmes developed with the help of scientists, conservationists and government officials dealing with specific problems and regions of great concern;

- There is a need for an experimental initial or pilot approach that will bring to the fore what is actually needed to tackle the problems of conservation effectively, through a framework legal instrument.